2.2.2 Water Quality and Stormwater Runoff

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source[1] unlawful unless the discharge is in compliance with a NPDES permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. RWQCBs administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by USACE.

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission (LOP). For Individual permits, the USACE decision to approve is based on compliance with EPA's Section 404 (b)(1) Guidelines (U.S. EPA 40 CFR Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[2] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (see 33 CFR 320.4). A discussion of the LEDPA determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (i.e., liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the

[2] EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (i.e., point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System Program

Municipal Separate Storm Sewer Systems (MS4). Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/ operator of an MS4 under federal regulations. Caltrans's MS4 permit covers all Caltrans ROWs, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014), and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices, as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit. Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and they are based on potential erosion and

transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with Caltrans's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than 1 acre.

Section 401 Permitting. Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address permanent and temporary discharges of a project.

2.2.2.2 Affected Environment

This section has been prepared based on the analysis and findings presented in the following technical studies:

- *Water Quality Assessment Report* (March 2016)
- *Preliminary Drainage Report* (October 2015)

OCTA has been coordinating with USACE since 2010 to discuss the approach and process to obtain authorization to construct the M2 Freeway Program Projects, as well as receive approval for advanced permittee-responsible measures for the rehabilitation, enhancement, and preservation activities proposed at Aliso Creek, Agua Chinon, and Ferber Ranch. As a result, USACE and OCTA decided that a Programmatic Individual Permit would be sought for the overall Program, which establishes LOP procedures. This, thereby, streamlines the approval of each individual project, as well as providing approval of the compensation types and locations provided at Aliso Creek, Agua Chinon, and Ferber Ranch to offset unavoidable

impacts to waters of the U.S. This Individual Permit establishing the LOP procedures (File No. SPL-2012-00830-VCL) was issued to OCTA and Caltrans in December 2017.

Surface Water Resources

Regional Hydrology

The project corridor falls within the San Diego Creek Watershed, which is part of the Santa Ana River Hydrologic Unit (801.0), Lower Santa Ana River Hydrologic Area (801.10) and East Coastal Plain Hydrologic Sub-Area (801.11) (see Figure 2.2.2-1). Within this watershed, the project crosses four water bodies, which are the San Diego Creek Reaches 1 and 2, San Joaquin Channel, and Lane Channel, as described in Section 2.2.1, Hydrology and Floodplains.

Local Hydrology and Existing Water Quality

Drainage patterns in the vicinity of the project area generally flow east to west and north to south, discharging to Upper Newport Bay and ultimately the Pacific Ocean. Major crossings are conveyed under I-405 via bridge structures or drainage culverts. Runoff that sheet flows toward I-405 is generally collected by parallel channels or local drainage systems and directed to surrounding cross drainage systems.

All flows from the proposed project site enter designed drainage facilities, and all runoff from within the project limits is eventually conveyed to the San Diego Creek. The San Diego Creek outlets to Upper Newport Bay and ultimately to the Pacific Ocean. The following water bodies are tributary to the San Diego Creek: Serrano Creek, Agua Chinon Creek, Bee Canyon Wash, Peters Canyon Creek, Sand Canyon Wash, and Bonita Creek.

The proposed project crosses 11 direct receiving water bodies and 5 indirect receiving water bodies, which are listed in Table 2.2.2-1.

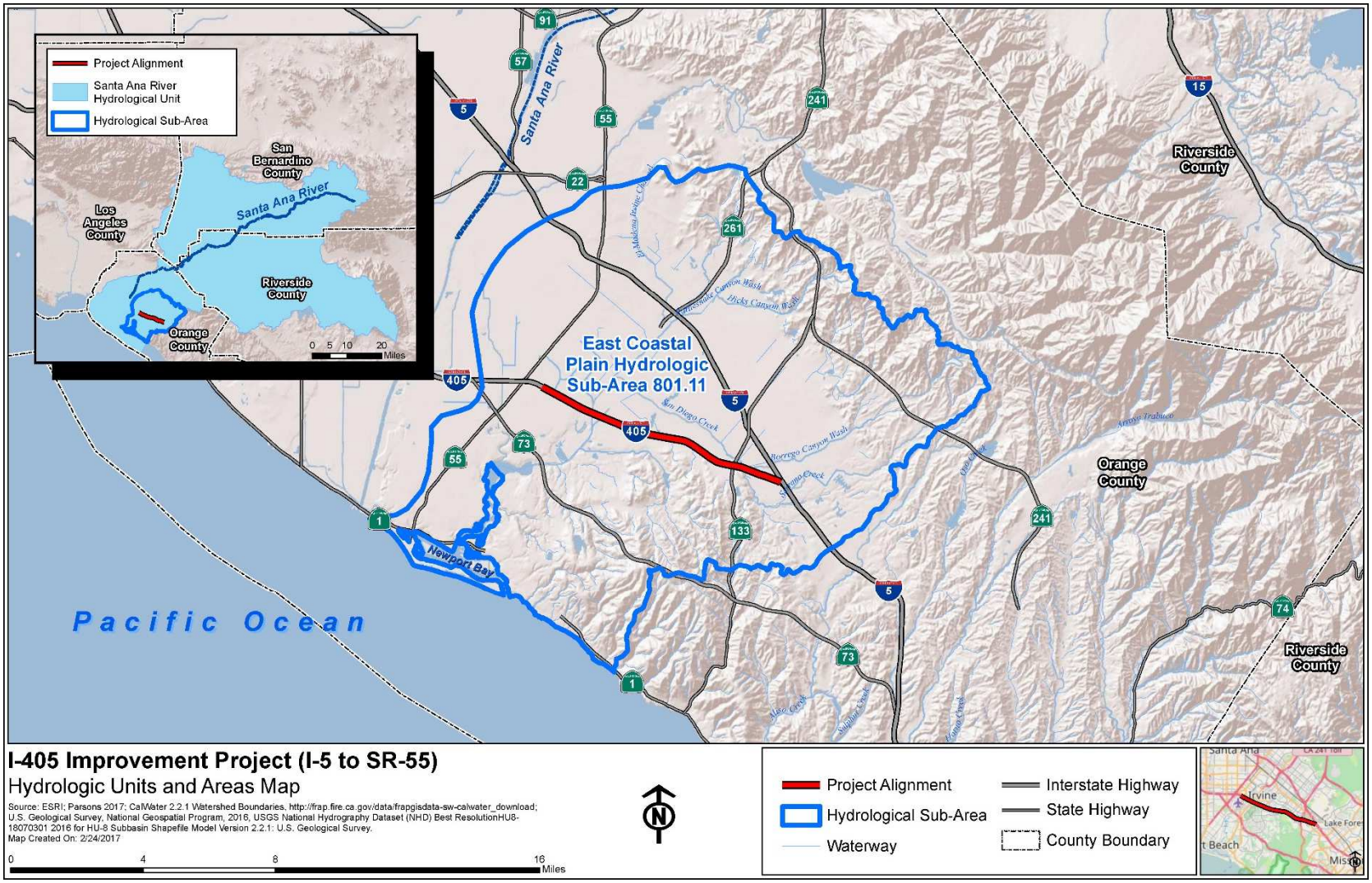

Figure 2.2.2-1. Hydrologic Units and Areas Map

Table 2.2.2-1. Direct and Indirect Receiving Water Bodies

Receiving Water Body Name	Orange County Flood Control Water Body Identification	303(d) Listed Pollutants[1]	Total Maximum Daily Loads (TMDL)[2]	Targeted Design Constituents (TDCs)[3]
Airport Storm Channel	F01S01	—	—	—
Lane Channel	F08	—	—	—
Barranca Channel	F09	—	—	—
San Joaquin Channel	F14	—	—	—
Culver Storm Channel	F14S01	—	—	—
Culver Storm Drain	F14P01	—	—	—
San Diego Creek Channel	F05	—	—	—
Peters Canyon Channel	F06	DDT (Dichlorodiphenyl-trichloroethane), Indicator Bacteria, pH, and Toxaphene	—	—
San Diego Creek Reach 1	San Diego Creek	Fecal Coliform, Selenium, Toxaphene, Nutrients, Pesticides, and Sedimentation/Siltation	Nutrients, Pesticides, and Sedimentation/ Siltation	Nitrogen, Phosphorus, Sediment
San Diego Creek Reach 2	San Diego Creek	Indicator Bacteria, Nutrients, Sedimentation/Siltation, and Unknown Toxicity	Nutrients, Sedimentation/ Siltation, and Unknown Toxicity	Nitrogen, Phosphorus, Sediment
Borrego Creek (from Irvine Boulevard to San Diego Creek Reach 2)	Borrego Creek	Ammonia (Unionized) and Indicator Bacteria	—	—
Santa Ana Delhi Channel (Outside Project Limits)	F01	Indicator Bacteria	—	—
Serrano Creek (Outside Project Limits)	F19	Ammonia (Unionized), Indicator Bacteria, and pH	—	—
Newport Bay, Upper (Ecological Reserve) (Outside Project Limits)	Newport Bay, Upper (Ecological Reserve)	Chlordane, Copper, DDT, Indicator Bacteria, Metals, Nutrients, PCBs (Polychlorinated biphenyls), Pesticides, Sediment Toxicity, Sedimentation/ Siltation	Indicator Bacteria, Nutrients, Pesticides, Sedimentation/ Siltation	Copper, Nitrogen, Phosphorus, Sediment

Table 2.2.2-1. Direct and Indirect Receiving Water Bodies

Receiving Water Body Name	Orange County Flood Control Water Body Identification	303(d) Listed Pollutants[1]	Total Maximum Daily Loads (TMDL)[2]	Targeted Design Constituents (TDCs)[3]
Newport Bay, Lower (entire lower bay, including Rhine Channel, Turning Basin and South Lido Channel to east end of H-J Moorings) (Outside Project Limits)	Newport Bay, Lower (entire lower bay, including Rhine Channel, Turning Basin and South Lido Channel to east end of H-J Moorings)	Chlordane, Copper, DDT, Indicator Bacteria, Nutrients, PCBs, Pesticides, Sediment Toxicity	Indicator bacteria, Nutrients, Pesticides	Copper, Nitrogen, Phosphorus, Sediment
Balboa Beach (Outside Project Limits)	Balboa Beach	DDT, Dieldrin, PCBs	—	—

Notes:
(1) The 303(d)/305(b) list of impaired water bodies is established by the SWRCB.
(2) TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed, established by the SWRCB.
(3) TDCs is a pollutant that has been identified by Caltrans as a primary pollutant of concern that is considered treatable by Caltrans-approved treatment BMPs.

Source: Preliminary Drainage Report, October 2015.

Surface Water Quality

The Santa Ana RWQCB designates beneficial uses for waters in the San Diego Creek Watershed, which are identified in the Basin Plan (RWQCB, 1995). The beneficial uses that have been identified for Reaches 1 and 2 of the San Diego Creek are as follows:

- Municipal and Domestic Supply (MUN) – Waters are used for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
- Water Contact Recreation (REC 1) – Waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible.
- Non-contact Water Recreation (REC 2) – Uses of water that supports recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible.
- Wildlife Habitat (WILD) – Uses of water that supports wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

- Groundwater Recharge (GWR) – Used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality, or halting saltwater intrusion into freshwater aquifers.
- Warm Freshwater Habitat (WARM) – Uses of water that supports warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including vertebrates.

Section 303(d) Listed Waters

Based on review of the 2012 California 303(d)/305(b) Integrated List and the Caltrans Water Quality Planning Tool, the disturbed area within the project limits lies within the San Diego Creek Watershed and contains direct and indirect receiving water bodies identified on the 303(d)/305(b) List of Impaired Water Bodies. As shown in Table 2.2.2-1, the following direct and indirect receiving water bodies for the proposed project are listed as 303(d) impaired water bodies:

Direct Receiving Water Bodies

- Peters Canyon Channel
- San Diego Creek Reach 1
- San Diego Creek Reach 2
- Borrego Creek (from Irvine Boulevard to San Diego Creek Reach 2)

Indirect Receiving Water Bodies

- Santa Ana Delhi Channel
- Serrano Creek
- Newport Bay, Upper (Ecological Reserve)
- Newport Bay, Lower
- Balboa Beach

Aquatic Sites

CWA jurisdictional resources within the biological study area (BSA) total approximately 6.124 acres of non-wetland waters of the U.S./waters of the State and 0.824 acre of wetland waters of the U.S./waters of the State. Approximately 23.118 acres of streambed, subject to CDFW jurisdiction, and 1.053 acres of CDFW jurisdictional riparian vegetation were identified.

Groundwater Resources

According to the June 2014 Orange County Groundwater Elevation Contour Map, it is estimated the depth to groundwater ranges between zero feet and 180 feet below ground surface (bgs) throughout the project limits. According to the California Division of Mines and Geology Seismic Hazard Zone Report 012 and 047 for the Tustin and El Toro 7.5' Quadrangles, historical high groundwater levels near the alignment range from 10 feet on the west side of the alignment near SR-55 to 40 feet deep near Culver Drive. From Culver Drive east to the end of the alignment, historical high groundwater levels are shallow to less than 20 feet deep. The groundwater flow is variable and dependent on local conditions along the corridor; however, the water is generally expected to flow regionally toward the ocean or nearby drainages.

2.2.2.3 Environmental Consequences

Alternative 1 (No Build)

The No Build Alternative would not increase impervious area or change land use in the I-405 project area; therefore, drainages and surface runoff would remain consistent with current conditions, and roadway runoff in this area would remain unchanged and untreated. This alternative would not result in an increase in long-term pollutant loading; however, the No Build Alternative does not preclude the construction of other future improvements or general maintenance to improve the operation of the facility or incorporate drainage enhancements. Under the No Build Alternative, no improvements to I-405 would be made other than routine maintenance.

Build Alternative 2 (Preferred Alternative) and Build Alternative 3

Surface Water

The existing impervious surface area of I-405 within the project corridor covers approximately 278 acres. Once project construction is completed, Alternative 3 would add an additional 8.12 acres of impervious surface area, for a combined total of 286.12 acres of impervious surface area within the project improvement limits of I-405 (an increase of approximately 2 percent). Alternative 2 would add a similar amount of impervious surface area; however, the increase in impervious surface would be approximately 0.5 acre less in comparison to Alternative 3.

An increase in impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. Pollutants of concern during operation of the project include suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris. Increases in impervious area can also cause a decrease in infiltration, increase the volume of runoff during a storm

event, and lead to changes in receiving water substrate from downstream erosion and accretion. Currently, there are no known BMPs along the project corridor; however, the project would use permanent treatment BMPs, including infiltration devices, detention devices, biofiltration swales/strips, and/or media filters, to address pollutants of concern during operation of the roadway facility. The treatment BMPs are measures designed to remove pollutants from stormwater runoff prior to discharging to receiving waters. The final determination of the treatment BMPs to be implemented will be made during the final design phase of the project. BMPs that are implemented would provide treatment of the net new impervious area to the maximum extent practicable, as required by the Caltrans Statewide NPDES Permit.

In addition, all channel improvements would have appropriate inlet or outlet energy dissipation and/or stabilization measures to minimize erosion. These BMPs would be implemented to target pollutants of concern from the project and reduce impacts on water quality during operation of the project. Furthermore, by using Caltrans-approved BMPs, adverse effects to the identified beneficial uses would be kept to a minimum. Therefore, no direct or indirect adverse long-term impacts on surface water quality would occur as a result of the project.

Groundwater

The project would increase impervious surface areas onsite, which would decrease infiltration. Soils throughout most of the project corridor have very low infiltration rates. Because infiltration rates are generally low under existing conditions, and considering the depth to groundwater, operation of the roadway would not result in a substantial decrease in total infiltration. In addition, operation of the project would not require long-term groundwater extraction. Therefore, the project would not substantially deplete groundwater supplies or substantially interfere with groundwater recharge, and direct or indirect adverse long-term impacts on groundwater would not occur as a result of the project.

Drainages

The project improvements would increase storm runoff caused by an increase in impervious surface area, which would increase the volume of flow and potentially increase the velocity of some onsite systems within the project limits; however, implementation of design measures and standard erosion control practices would minimize the effects of downstream flow. In addition, infiltration and detention devices proposed for the project would provide flow duration control functions, as needed.

Operation of the project is subject to the requirements of the Caltrans NPDES Permit, as described in Measure WQ-4. Caltrans must: (1) comply with the requirements of the Caltrans Statewide NPDES Permit and any subsequent permit; (2) consider approved BMPs to treat the

runoff from the project site; and (3) install these BMPs where feasible for the build alternative. With the implementation of Measure WQ-4, no direct or indirect permanent impacts on long-term drainage water quality would occur.

Construction (Short-Term) Impacts

Surface Water

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increase in potential for soil erosion compared to existing conditions. In addition, chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters.

Construction activities as part of the project would disturb soil and increase the potential for soil erosion and suspended particles that can be generated from vehicles operating on a roadway. The DSAs are defined by Caltrans as being areas of exposed, erodible soil that are within the construction limits and that result from construction activity. The total DSA for the project is approximately 112 acres. If the DSA is greater than 1 acre, a SWPPP must be prepared pursuant to the NPDES Construction General Permit. Because the project's total DSA exceeds 1 acre, a SWPPP shall be prepared prior to construction to identify BMPs to be implemented during construction activities, as discussed in Measure WQ-1.

The project is being designed to minimize potential for erosion through use of the following project design features:

- Slopes would be disturbed only when necessary, minimizing cut and fill slopes, incorporating retaining walls to reduce steepness, avoiding areas that are particularly difficult to revegetate, making slopes as flat as possible, rounding slopes, and collecting concentrated flows in stabilized channels.
- Standard erosion control practices would be implemented, such as placing rock slope protection at inlets and outlets of storm drain pipe and diverting runoff to stabilized swales and ditches.
- Temporarily impacted areas would be revegetated to minimize soil erosion following construction activities.
- Staging areas would be located in areas that would limit disturbance that would support their potential use as areas for placement/installation of proposed BMPs.

- Slope disturbance would be minimized by matching existing slope conditions, where practicable. Preservation of existing vegetation would be maximized to the extent practicable to help reduce the amount of clearing and grubbing that would be required on slopes. To reduce the potential for concentrated flows, benches or terraces would be rounded or shaped accordingly. New slopes would be 2:1 (horizontal to vertical) or flatter where feasible. Disturbed slopes shall be revegetated.

At the San Diego Creek Channel bridges, dewatering may be necessary. The project will be subject to any dewatering permit requirements from the RWQCB, as discussed in Measure WQ-2, to ensure downstream discharge meets water quality requirements for sediments and chemicals.

Construction methods, such as properly scheduling activities within approved work windows, using existing access roads, preparing dewatering plans to minimize potential ground to surface water discharges, avoiding wetland disturbances, and locating staging areas in upland areas away from the river bed would be employed to minimize water quality impacts at the San Diego Creek and throughout the project to the maximum extent practicable.

During construction, the project will comply with the requirements of the Construction General Permit, including preparation and implementation of a SWPPP, as described in Measure WQ-1. The project will be required to implement the General WDR Permit as described in Measure WQ-2. Implementation of Measure WQ-2 would ensure that no adverse effects on surface water quality would occur during construction. Accordingly, with conformance to the provisions in the General WDRs for Discharges to Surface Waters, downstream hydrologic subareas—such as the East Coastal Plain Hydrologic Sub-Area, and plant and animal species of concern—are not expected to be affected by pollutant transport and erosion of land and sedimentation within waterways and storm drains.

Groundwater

At the San Diego Creek Channel bridges, dewatering may be necessary to create a temporary dry construction area for bridge construction. Dewatered groundwater may contain high levels of total dissolved solids or other contaminants that could be introduced to surface waters; however, these groundwater dewatering activities would be considered temporary, and it is not anticipated that the volume of groundwater removed would be substantial.

As specified in Measure WQ-3, prior to the commencement of any discharges of extracted groundwater waste, the project will obtain coverage under the Santa Ana RWQCB dewatering permit (Order No. R8-2009-0045/R8-2015-0004). Monitoring of dewatering discharges and

adherence to effluent and receiving water limitations contained within the permit are required so that water quality of surface waters is ensured protection. With the implementation of Measure WQ-3, no direct or indirect temporary adverse groundwater quality impacts would occur during construction of the build alternatives.

Drainages

As discussed in Section 2.3.2, Wetlands and Other Waters, Alternatives 2 and 3 would result in permanent and/or temporary impacts to USACE, RWQCB, and CDFW jurisdictional wetlands. These impacts are associated with the proposed widening of the San Diego Creek Channel bridges. Appropriate regulatory permits will be obtained prior to construction activities for impacts on jurisdictional areas. These include Section 401 Water Quality Certification, a Section 404 Permit, and a Section 1602 Streambed Alteration Agreement. Appropriate restoration of areas temporarily impacted would be determined in consultation with USACE, Santa Ana RWQCB, and CDFW via the regulatory permitting process. With obtaining the appropriate regulatory permits and following the conditions of those permits, no direct or indirect temporary adverse impacts on drainages would result during construction of the build alternatives.

During construction, the total DSA for the proposed project is estimated to be 101 acres for Alternative 2 and 112 acres for Alternative 3, and it would include the following elements: roadway widening, structure improvements, and drainage improvements. Soil-disturbance activities include earth-moving activities such as excavation and trenching, soil compaction and moving, cut and fill activities, and grading. Pollutants that could be generated by construction activities include vehicle fluids (i.e., oils, grease, and coolant), cement and masonry products, landscaping-related products, and excavation materials. Some pollutants can lead to turbidity (i.e., cloudiness), which blocks light transmission and penetration, reduces oxygen levels, affects the food chain, and creates changes in water temperature.

Pollutants in stormwater could also cause chemical degradation and aquatic toxicity in the receiving waters, adversely affecting the survival of plant and animal species, their populations, and the ecosystem structure. Jurisdictional areas impacted by the proposed project include temporary impacts to 0.10 acre of waters of the U.S. and CDFW streambed.

Compliance with the Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ) would minimize construction water quality impacts. In addition, construction site BMPs that would be included in the SWPPP would be implemented to minimize pollutants in the stormwater and non-stormwater discharges throughout construction.

Implementation of Measures WQ-1 through WQ-5, described under Avoidance, Minimization, and/or Mitigation Measures in Section 2.2.2.4, would reduce potential construction-related impacts to water quality.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures will be implemented with the project and would minimize or avoid impacts related to water quality and stormwater. Short-term (construction) and long-term (operations) direct and indirect effects related to water quality are minimized with implementation of Measures WQ-1 through WQ-5 below. Standardized measures which are employed on most, if not all, Caltrans projects are indicated in bold.

WQ-1: Implement Stormwater BMPs. The project shall conform with the Caltrans Statewide NPDES Storm Water Permit Waste Discharge Requirements for the State of California Department of Transportation (Caltrans NPDES Permit) for discharges from Caltrans properties, facilities, and activities (Order No. 2012-0011-DWQ, NPDES Permit No. CAS000003, amended by Order No. 2014-077-DWQ) (Caltrans, 2016).

WQ-2: Prepare and Implement a SWPPP. The Caltrans NPDES Permit requires compliance with requirements of the Construction General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES Permit No. CAS000002, amended by Order No. 2010-0014-DWQ and by Order No. 2012-0006-DWQ (Caltrans, 2017). The Contractor shall develop a SWPPP per requirements of the Construction General Permit and Caltrans NPDES Permit. The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing stormwater pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All construction site BMPs shall follow the latest edition of the Storm Water Quality Handbooks, Construction Site Best Management Practices Manual (Caltrans, 2017), to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards.

WQ-3: Construction Site Dewatering. If dewatering is required for the project, the project will conform with the requirements specified in the Santa Ana RWQCB's dewatering permit Order R8-2015-0004 (NPDES No. CAG998001) or R8-2009-0045 (NPDES No. CAG918002), as appropriate.

WQ-4: Design Pollution Prevention BMPs. The project will incorporate Design Pollution Prevention BMPs to the entire project to minimize potential pollution discharges generated during the operational phase. The incorporation of Design Pollution Prevention BMPs shall meet the objective of maximizing vegetated surfaces, preventing downstream erosion, and stabilizing soil areas.

WQ-5: Treatment BMPs. The project shall incorporate Treatment BMPs by evaluating all nine Caltrans-approved Treatment BMPs and selecting the most efficient option in relation to the direct and indirect receiving water bodies associated with the project. Caltrans-approved Treatment BMPs shall be implemented to the MEP consistent with the requirements of the Caltrans NPDES permit.

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